Performance Matters

The Right Direction

by ***Shane Bedwell***

With the release of the new genetic evaluation, the AHA offers three profit indexes to utilize based on production goals.

Shane Bedwell is the chief operating officer and director of breed improvement of the American Hereford Association. He can be reached at sbedwell@hereford.org.

I hope those of you who have started calving season are off to a strong start and are excited with the progress you have made. Bull sale season is upon us, and the updated genetic evaluation implemented in late 2017 (see Page 34) provides access to a progressive set of tools, allowing cattlemen to make more informed selection decisions.

Along with updating some of the parameters with the updated genetic evaluation, the American Hereford Association (AHA) implemented two key economically relevant traits (ERTs) into the suite of traits produced for every animal — Sustained Cow Fertility (SCF) and Dry Matter Intake (DMI).

New traits

SCF is a prediction of a cow's ability to continue to calve from 3 to 12 years of age, given she calved as a 2-year-old. The expected progeny difference (EPD) is expressed as a deviation in the proportion of the 10 possible calvings to 12 years old expressed as a probability. For example, the daughters of a bull with a 30 EPD would have the genetic potential to have one more calf by age 12 than the daughters from a bull with a 20 EPD. In other words, the daughters from the 30 EPD bull would have a 10% greater probability of having one more calf than the daughters from the bull with a 20 EPD. This is equivalent to saying the daughters are 10% more likely to remain in the herd to age 12.

DMI predicts the daily consumption of pounds of feed. For example, if sire A has a DMI EPD of 1.1 and sire B has a DMI EPD of 0.1, you would expect sire B's progeny, if comparably mated, to consume on average 1 lb. of feed less per day.

Profit indexes

These two traits are now incorporated in the three profit ($) indexes AHA produces for commercial producers, as well as the other key ERTs AHA is producing in its genetic evaluation.

The **Baldie Maternal Index (BMI$)** is a maternally focused index based on a production system that uses Hereford-Angus cross cows. Progeny of these cows are directed toward Certified Hereford Beef (CHB®). This index has significant weight on SCF, which predicts fertility and longevity of females. There is a slightly positive weight on Weaning Weight (WW), Mature Cow Weight (MCW) and Maternal Milk (MM), which accounts for enough growth but ensures females do not increase inputs. There is some negative emphasis on DMI, but a positive weighting on Carcass Weight (CW), which is anticipated to provide profitability from finishing of non-replacement females and castrated males. Marbling (MARB) and Ribeye Area (REA) are also positively weighted to keep harvested progeny successful for CHB. This index is geared to identify Hereford bulls that will be profitable when used in a rotational cross with mature commercial Angus cows.

The **Brahman Influence Index (BII$)** is a maternally focused index based on a production system that uses Hereford-Brahman cross cows. Progeny of these cows are directed toward a commodity beef market since CHB does not accept Brahman-influenced cattle. This index also has significant weight on SCF. There is a slightly positive weight on WW, MCW and MM, which accounts for enough growth but ensures females do not increase inputs. There is some negative emphasis on DMI, but a positive weighting on CW, which is anticipated to provide profitability in finishing non-replacement females and castrated males. MARB and REA are also positively weighted to keep harvested progeny successful for a variety of commodity-based programs. This index targets producers that use Hereford bulls on Brahman-influenced cows.

The **Certified Hereford Beef Index (CHB$)** is a terminal-sire index built on a production system where Hereford bulls are mated to mature commercial Angus cows and all progeny will be targeted for CHB after the finishing phase. This index has significant weight on CW to ensure profit on the rail. There is a positive weighting for average daily gain, along with a negative weighting on DMI to ensure efficient pounds of growth in the finishing phase. Keep in mind, this production system takes advantage of complementary breeding with the commercial Angus cow. Although MARB is weighted positively in this index, a positive weighting for REA and a negative weighting for Rib Fat (FAT) are a greater priority in this index to allow for optimum end-product merit. This is the only index with no emphasis on fertility. Remember, no replacement heifers are being retained in this scenerio.

Utilizing these $indexes appropriately is critical for their success. All three economic indexes simulate potential profit relative to the production scenario given in the definitions of the index. If you are a commercial producer who is wanting to keep back females, then CHB$ is

continued on page 12...

Figure 1: Change in EPD (genetic SD) per SD change in CHB$

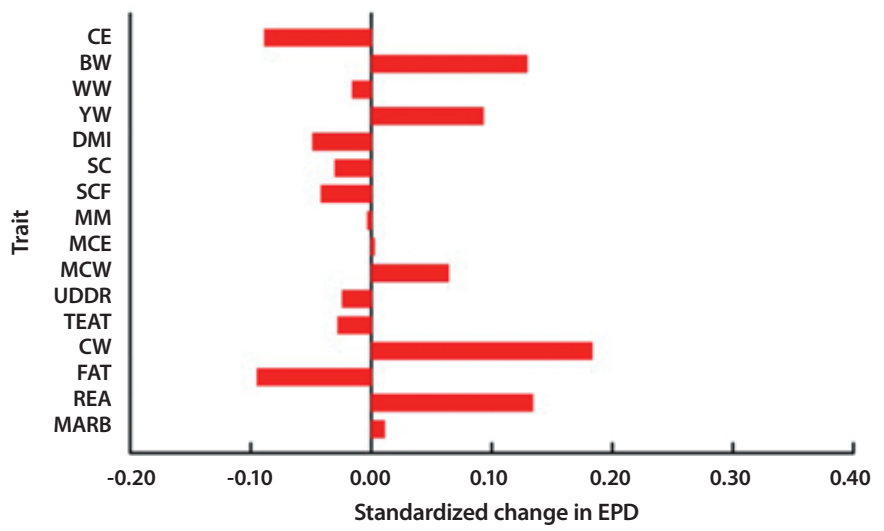


Figure 2: Change in EPD (genetic SD) per SD change in BMI$

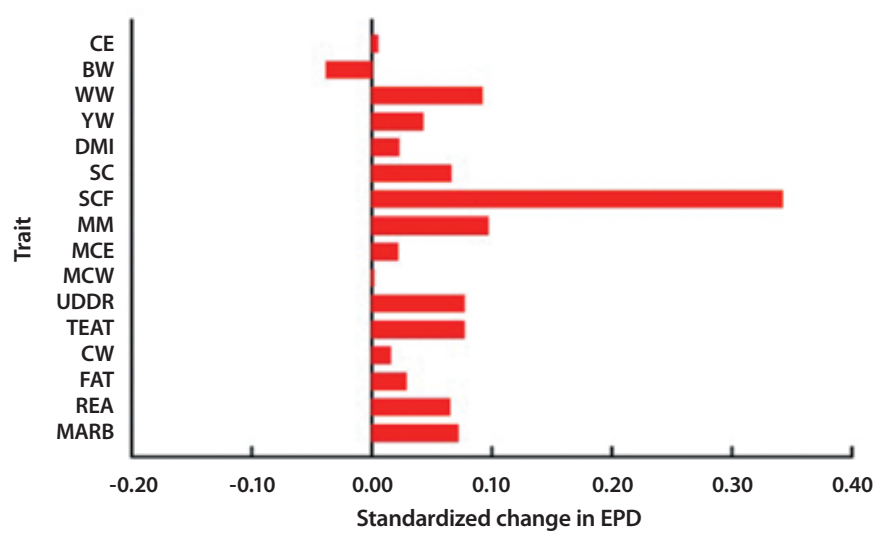
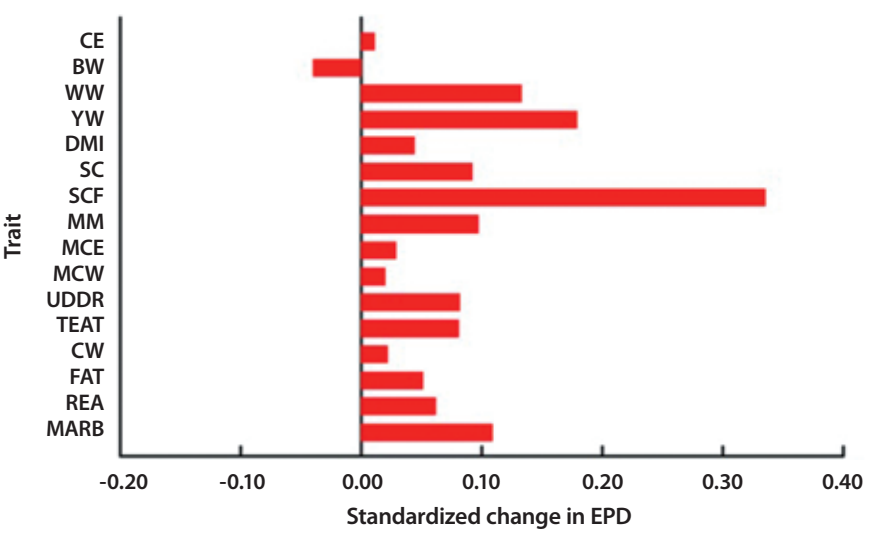


Figure 3: Change in EPD (genetic SD) per SD change in BII$



...Performance Matters continued from page 8

not the index you would use, as it is strictly terminally focused. You would use BMI$ or BII$ for selection pressure, given your cow base fits the scenario of the $Index — Angus-based cows for BMI$ and Brahman-based cows for BII$.

The $index value of animals shows how they rank compared to other animals for the respective scenarios — the actual numbers do not translate into actual economic dollars. For example, if you had a bull at a 35 CHB$ and another at a 25 CHB$, the difference is 10. This difference doesn't equate to $10 per head; it only signifies the sire with a 35 for CHB$ will be more profitable when used in this scenario than when compared to the sire with a 25 for CHB$.

What's best to look at is the impact of putting selection pressure on an individual $Index. Often, in selection and breed improvement, producers think of moving traits or indexes one standard deviation above the mean. This step helps to identify the animals that can move your herd forward in the specific trait or index of interest. More importantly, $Indexes help show what the resulting net effects will be on the traits that drive these indexes if you make progress by moving the individual index up one standard deviation.

On Page 8 are three graphs showing the change in EPD genetic standard deviation due to the change of moving the $Index one standard deviation forward. Given CHB$ (Figure 1) is a terminal $Index, you would expect some of the maternal traits not to progress or even go backward on some traits. When looking at BMI$ (Figure 2) and BII$ (Figure 3), you can see progress can be made in the right direction in most every trait.

It's critical to select the right $Index for your needs. **H**W